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THE SANITARY RELIEF

OF

NEW ORLEANS,

A PAPER READ BEFORE THE NEW ORLEANS MEDICAL AND SURGICAL
ASSOCIATION, OCTOBER 31st, 1885,

BY

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The Sanitary Relief of New Orleans.*

BY JOSEPH HOLT, M. D., New Orleans.

This paper was prepared by request of the editors of the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL, who desire an expression of my views concerning an efficient system of drainage and general sanitary relief for the city of New Orleans.

It is the intention of these gentlemen to elicit several papers on this subject with the avowed purpose of uniting in and vigorously supporting the popular agitation of a measure conceded to be of more vital importance to the interests of this community, present and prospective, than any other with which it can possibly have to deal.

The necessities of the situation are imperative.

The Board of Health, Auxiliary Sanitary Association and daily press are awakening with determined energy to the necessity of a concentrated effort in the direction of permanent reform.

It behooves this association, gentlemen, in order to maintain the integrity of a record as a faithful worker in the field of professional and public utility, to throw the whole weight of its intellectual force, together with its time and zeal into an earnest participation in a cause which contemplates the redemption of New Orleans from the bondage of misfortune; from a subtle malignant influence as persistent as the penalty of violated law; a redemption of this city from the insalubrity of its own soil, which is the fostering parent of all our woes.

To remove this menace, this constant source of mischief, and to furnish in its stead an assurance of a reasonable

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preservation of the public health is to liberate this city, socially, industrially and commercially. Not to do so means to consign it hopelessly to degradation and decay.

If there are claims upon our patriotism, the motives of life, the love of family and self, higher than this demand, we have yet to know of them!

The magnitude and urgency of the question fully warrant an ample discussion of it, which can only be done by beginning at the source and following the line of sequence until we reach an explanation of our present state of utter lack of efficient sanitary methods.

At this late period in the development of New Orleans, when its population numbers nearly a quarter of a million, and its compact squares already cover several thousand acres of low, swamp land, scarcely redeemed from its primitive condition—more than cutting off the timber, clearing the ground, filling pools, laying out streets indicated by superficial side ditches, and building upon the squares enclosed by them—we now propose to “*agitate the question*” of beginning a work of municipal sanitation which should have been planned half a century ago, and should have progressed as the essential frame work of the general growth.

Here is the first cause! the very beginning of all the inconvenience, the special discomfort, the oft-recurring calamities and direful distress endured these many years in the wretched condition of our streets, the accumulations of sewage matter, extensive inundations of inhabited districts, a high mortality sustained by an undrained swamp-soil, the impossibility of efficient sanitation under existing conditions, and the sweep of pestilential infections, which find in these conditions the elements of propagation as responsive as gunpowder to a spark.

Could we formulate a problem in simple addition, noting in its columns all the annoyance, the wretchedness, the disease, death, commercial loss, depression of property values, money realized here and invested in real estate elsewhere, retarded growth by such depletion and the deflection of immigration, depression of enterprise and public

spirit, the enforced idleness, growth of thriftlessness, what an appalling sum total would be shown on the debit side of no drainage ! no sewage !

Can there exist such a spendthrift account against this people, and yet no one to blame? Have these things just so happened, and no personal responsibility for their occurrence?

It is fashionable, we know, to make a boisterous out-cry about foul gutters and dirty and unpaved streets, the outrageous condition of drainage canals, and to pass a sweeping condemnation upon the city authorities in general, and the heads of certain departments, notably that of public improvements in particular.

In making this remark, I do not refer to the exposure of official negligence and the stern enforcement of responsibility by a public spirited body of citizens, but to those sensational displays begotten of inordinate conceit and a love of notoriety, which work no good, but inflict harm only.

An implacable enemy of official negligence and dishonesty, when proven, I am equally the advocate of justice. There are no terms too strong in which to condemn the popular hue-and-cry sometimes, or rather, periodically, instigated against these officials for not performing the herculean task of cleansing this Augean stable, and holding them to the extremest exaction of accountability for the condition of streets, gutters and drainage ; at all times bad enough, sometimes abominable.

Allow neither excuse nor condoning of the faults of officials, but exact of them the full measure of work. Demand all that can fairly be required, but let justice square with reason.

The authorities can no more accomplish the proper sanitation of this city as it is, than they can reverse the revolution of the planet in its orbit.

The case is a serious one and needs treatment, but harsh criticism and vehement anathema are not the remedies to meet the conditions complained of. They excite public clamor and outbursts of indignation which serve to enter-

tain the attention for a few days and then subside like wavelets upon a pool. To say the least, they have been long and vigorously tried, but with results so poor, as to necessitate a change.

The authorities are simply the exponents of the people, who are themselves finally responsible, and are as much to blame as the authorities! The sins of commission and of omission are about even all around, and for this reason let us dismiss crimination and recrimination as remedial agents.

In the philosophy of our municipal history we shall find the causes of the present situation and the remedy will suggest itself.

The misfortunes at home and the knowledge of them abroad, magnified by the unscrupulous into wildest exaggerations and grossest calumnies, the procrastinations of the past, laid as an accumulated task upon the present, are legacies singularly like the iniquities of the fathers visited upon the children even unto the third and fourth generations.

Long before the war, during a period of many decades, this city reveled in wealth, and could well have afforded to lay the sure foundation of a complete system of sanitation. It could easily have established such a beginning as would have compelled succeeding generations to go on with its completion.

Thomas Jefferson understood the main features of our sanitary necessities and suggested the proper method of building the city.

With the exception of Benjamin Morgan, Samuel J. Peters, James H. Caldwell, and some two or three other broad minded, far-seeing men of their time, there was not enough public spirit, not enough genuine love of the city itself, to provide a substantial heritage for the future, or even to care particularly about the present beyond the gratification of self.

We are the heirs direct of retributive justice; of all the fruits of political shouldering; the unworthy bestowal of

public trusts; of all the dishonesty; official negligence; the general apathy of professional and business men in municipal affairs; of all the civic transgressions of our predecessors.

These spent their days of activity in the all-absorbing effort of getting rich, in order to go somewhere else to spend their wealth and to educate their children.

A prevailing sense of temporary abode; the actual absenteeism of many large property-holders, all gave direction to municipal indifference and a disposition to relegate to political aspirants the annoyance of questions involving, not only the healthy growth, the maintenance of supremacy, but the destiny of New Orleans.

"Let the future take care of itself!" was the motto, cruel! selfish! false! Aye! and we in the living present are assembled here to-night for the purpose of self-protection, by caring for the results of improvidence, with the odds against us!

The men of this day rise up in judgment against that generation; for they were false in the obligations which are binding upon all men to make them responsible to the future, and have betrayed that future to the calamities which have befallen it.

Now comes the question which brings the matter home, and fixes a responsibility upon ourselves! Shall we continue in the selfish negligencies and the iniquities of our predecessors and transmit this record of improvidence, and thus compel the repetition of our own sad experiences?

If every business man, lawyer, editor and doctor could only carry with him the conviction of responsibility to the future of his family and of his own interests—could work and eat and sleep with it as an ever-present reflection, New Orleans would be the best drained and the cleanest city in America inside of ten years.

There is no beginning to the solid advancement of New Orleans, except the beginning of assured health established upon the efficient drainage and sewerage of the city.

To accomplish these, the work must be scientific; not

the disjointed and puerile attempts such as exhibit the vestiges of their creation in that marvellous reticulation of big ditches running through the mud in opposite and most unexpected directions; beginning nowhere in particular, and ending anywhere generally; those huge accumulations of seething, bubbling putrescence in sluggish flow, revolting to the sight, polluting the air, and an abiding menace to the public health; called in a spirit of grim joke, "The Drainage System," just as people call a boil a pet.

A system of drainage! inscrutable in purpose (since it drowns out at times whole neighborhoods); in construction, monumental to the energy, the public enterprise, the faithfulness and intelligence of a people. Let us bury our monuments! Let us cease this wasteful expenditure upon a miserly system, and by a liberal economy show substantial improvements for the money and time spent, and not these hulks of draining machines and cess-pools.

Within the last thirty-four years, from 1852 to 1885, inclusive, there has been expended by the municipal authorities, under the account of "*Streets*," and "*Drainage*," the enormous sum of \$13,565,984. What is there to show for it?

The taxation represented by these figures is truly a drainage, but how long shall we suffer this hopeless depletion of property, for no other end than a mere show and pitiful pretense in the matters of streets and drainage improvement?

As we are, a hundred millions may eventually be wrung from the people by taxation, and the money expended with nothing but unpaved and dirty streets, and cess-pools to show for it!

In making a movement, the first, and by far the most serious obstacle opposed will be the declared lack of money, the plea of poverty. We must surely expect to be confronted with this standing apology for inaction, embodied in these replies:

"But property has depreciated and cannot stand the ex-

pense ; we are too poor to begin ! The argument is strictly business in its pretension."

What is the cause of the depreciation?

Is property ever too poor to stand an increase of fifty, one hundred, two hundred per cent in value?

What would be the difference between property values in New Orleans, undrained, sometimes partially inundated, no efficient sewage disposal and a high death-rate, and New Orleans thoroughly drained, its sewage disposed of promptly and mortuary statistics permanently reduced?

The conclusions inevitably drawn from these inquiries are all on the side of permanent sanitary improvement.

The inducements to live here are widely known and fully appreciated.

With so many conditions favorable to the possibilities and comforts of living ; presenting an unlimited field for manufacturing and commercial enterprise, why are there not a million inhabitants?

Simply because our record is open before the world. Just turn to your Worcester dictionary, unabridged, for the word sanitary and you will find an instance of its definition cited thus :—" *The sanitary condition of New Orleans as illustrated by its mortuary statistics.*" We all know the import of that explanation.

The world demands of us a reasonable guaranty for the protection of life and health.

No prudent and truthful man can declare his confidence in the safety of New Orleans from the invasions of pestilence, until these conditions which invite, yea, seem indeed sufficient to create disease, are radically destroyed.

Quarantine as we may! declare non-intercourse with the world! build around ourselves a wall without gates, if we will! until this city is provided with a superficial and sub-soil drainage, and its sewage disposed of through some efficient system, we live in jeopardy, yea, in the certainty of disaster.

As Cato, in speaking on any subject, invariably concluded with an urgent appeal for the salvation of Rome : "*But*

it is my opinion carthage must be destroyed!” so must we on all occasions urge our opinion: “NEW ORLEANS, TO BE SAVED, MUST BE DRAINED AND CLEANED!”

Municipal sanitation, (a modern term which implies drainage of soil and removal of refuse), together with a watchful *and rational* precaution against the introduction of pestilential infections, constitute the entire measure of human effort against yellow fever, cholera and, including vaccination, small-pox.

To rely upon municipal sanitation or upon quarantine alone is a wilful abandonment of one-half the resources of defense. We may escape for a while, but are taking desperate chances on the future. “NEW ORLEANS, TO BE SAVED, MUST BE DRAINED AND CLEANED!”

When we so change local conditions as to make them unfavorable to the spread of pestilential infections and at the same time use *rational measures* against their introduction, then may we boldly talk of guarantees and refer to our achievements with pride; but until then a modest reticence and a devout thankfulness for deliverance are far more becoming than, the presumptuous “I DID IT!” the boastful attitude of a fool.

To begin the great work of municipal sanitary improvement, the course which presents itself to my mind as the wisest to pursue is this: Begin with the determination to establish a fixed plan that shall serve for all future work.

There can be no permanency and hence no good results unless the disturbance incident to frequent changes in local and State governments are carefully provided against; which can be done in one way only: create a supervising authority, free from all political influence and entanglement.

Until the people and their representatives are ready to concede this much for the redemption of all, it is useless to begin.

Call this supervising head The Board of Public Works, as suggested by Dr. C. B. White. Let it consist, primarily, of seven citizens, chosen (four by the city and three by the State), for their known integrity, clear judgment, their zeal and efficiency as public-spirited men.

Let the term of office be for seven years; one term to expire annually and the vacancies to be filled either by the Board directly or upon its recommendation, thus making the body self-perpetuating.

It is unnecessary to consider here the functions of this Board further than to state that it shall immediately employ the highest order of talent and experience in municipal engineering, with a view of perfecting surveys, formulating plans and commencing work.

Such legislation, city and State, as may be required to create this Board, prescribe its duties, raise money and otherwise assist, should be secured at the earliest practicable moment.

As to the best plan of draining this city, there are nearly as many contrary opinions as there are persons to express them.

While this question must be left to the Board and its associate engineers for the selection and final adoption of a plan, it is well, in the meantime, to agitate the subject in every possible way in order to elicit the fullest expression of opinion from all who are willing to give the subject consideration.

These discussions excite public interest and develop a vast amount of useful investigation and valuable suggestion.

In the absence of a Board and its advisory body of accomplished experts, it is not presumptuous in any one to speak his mind freely and to write what he chooses on the subject of drainage plans.

It is not in bold expressions of opinion that danger lies, but in timid reticence and fatal apathy. The whole case with us is simply one in which we are the victims of indifference.

For myself, I entertain very positive ideas in regard to the best method of superficial, storm-water and sub-soil drainage of this city, and am heartily in accord with our good friend, "*The Daily City Item*," in its general view of the question.

It is my belief that a plan of sanitation can be com-

menced at moderate cost ; that every dollar expended in its development would be for present relief in the direction of a permanent system : and that in a few years, without the necessity of increased financial embarrassment, New Orleans may enjoy the comfort at home and reputation abroad, so long withheld, which she so rightfully demands, but her citizens alone can confer.

Let us bring forward, now, the facts bearing on the drainage problem which seem to indicate the methods of its solution.

The statement is made as a suggestion to and a reason for a Board of Public Works, with associate experts, which should be created without delay with full power to survey the field of their labor and put into execution a plan of permanent relief. A plan that will admit of indefinite extension without being changed ; one that shall meet the necessities of the present, and provide, as in duty bound, for a population of a million of inhabitants.

New Orleans like Chicago, is built upon a surface, almost flat, and so near the surrounding water-levels (in our case sometimes below), that its drainage and sewage must be wholly artificial.

In both cities drainage and sewage must ultimately pass through the same channels of discharge however separate the arrangement at their source.

Any system that violates the laws of sanitation contradicts and condemns itself.

Chicago is now warring against the drainage and sewage contamination of her lake front.

New Orleans must not permit such discharge upon her river front, and under no conditions allow the outflow of sewage into Lake Pontchartrain.

The discharge of sewage into slack-water, except at a great distance, is an offensive and dangerous procedure. It constitutes the main difficulty opposed to the sanitation of Chicago, the cities of Holland, Marseilles, Toulon, Naples, Havana, in fact, nearly all the lake and sea-coast cities.

The shore of Lake Pontchartrain is a delightful pleasure resort at our doors, and should be beautified and made more inviting.

Together with these considerations, every step in the present ought to be taken with a view to the ultimate extension of the city laterally to the lake.

To permit this shallow slack-water, heated during many months under a tropical sun, to be contaminated by the in-pouring of a mass of putrid sewage to be spread out and exposed upon extensive mud flats along shore, made bare by daily wind-tides, would be the perpetuation of an already intolerable nuisance, and the imposition upon our successors of an abomination for greater than any we have yet endured.

In what direction shall the course of drainage be?

It is physically impossible to drain the city coastwise, upward; we *must not* drain it into the river front or into Pontchartrain: we are therefore compelled to drain it directly downward from the upper to the lower limits of the city, through a "cloaca maxima," or central viaduct, of particular construction, laid along the line of lowest depression, in the valley between the levee on the river front and Metairie Ridge.

The water-shed or area of drainage to be relieved by this system is bounded above by the Upper Line Protection Levee, below by the Lower Protection Levee, in front by the levee along the river bank, and in rear by the Metairie Ridge.

The protection of this basin against inundation from without is the first piece of work to be accomplished by the completion of protection levees.

The next step is to establish a central drain, as stated, through the length of the city, to serve as the trunk, in relation to which the entire system of out-branching street gutters, smaller canals, sub-soil-tile drains and sewage pipes shall be constructed.

It is impossible to include in this discussion, certainly

at present, the question of a system of excremental sewage. This can well be deferred for a later developement.

The central drain is truly a grand cloaca or main gut, for its contents are necessarily not only drainage water but any and every kind of refuse matter washed or cast into it.

Work upon it would have to commence at the lowest end of the city and progress upward.

Claiborne street, including the Claiborne canal, offers the most advantageous line.

To illustrate its construction, its source should be at the point of junction of the Upper Line with the river, where a small flushing engine should be stationed. It should begin with a depth of three feet by five in width. These dimensions should gradually increase in conformity with the natural law which regulates the capacity of the bed of a stream to suit the accessions to it in its course. The rate of increase in dimensions should be such as to attain a depth of thirty feet at its outfall.

I am simply illustrating an idea, gentlemen, and not pretending to prescribe exact data!

The advantages of this sharply increasing depth are a rapidity of current and the allowance for deep sub-soil drainage, besides providing a temporary reservoir ample to accommodate a sudden and heavy rainfall.

With a proper sub-soil drainage, the construction of such a canal would be equivalent to raising the entire city eight or ten feet. Canal street, for example, is twelve feet higher at the base of the levee than it is at a point a little beyond Claiborne street. The depth of the canal at the point of crossing added to this natural decline gives a fall of twenty-five or twenty-eight feet available for the drainage of Canal street and its tributary squares.

Whenever street gutters should require too deep a cut in order to acquire sufficient fall in their course towards the canal, the trouble could be overcome by final emptying through underground pipes.

The central drain should be so constructed as to insure the greatest scouring effect of current, and therefore ap-

proximating a V shaped bottom to prevent accumulation of deposit. It should be faced throughout with heavy creosoted planking securely placed.

It should subtend the two navigation canals through groups of six foot iron tubes, and a special engine placed at these points to facilitate flow, if necessary.

Although, in after years, it might be concluded to make this drain subterranean it should be commenced as an open one, against which no valid objection can be urged, inasmuch as it would occasion no offense whatever, as will now be explained.

The present system of flushing, inaugurated with such excellent results by the Auxilliary Sanitary Association, would be extended the entire river front, so that every latitudinal street gutter would be flushed in addition to the flushing engine at the head of the canal, and thus a head of cold river water would be maintained in the canal, with a current of at least two miles an hour.

It matters not what kind of matter might enter the canal, it would instantly be diluted in a flood of pure cold water and start on a run that would throw it entirely out of the city from the most remote point in the course of four or five hours, at most.

At the lower end or outfall of the central drain the final disposal of the ordinary daily discharge should be accomplished by a powerful lifting pump or engine, of enormous capacity, driving it through pipes well out into the river where it would be diluted in an infinite volume of water in rapid flow, and would also undergo speedy destruction by oxidation.

New Orleans has as much right to sewer into the Mississippi as all the other cities on its banks and tributaries, including Chicago which is at this moment bending its energies to cut a sewage canal and drain into the Illinois and save her precious lake front.

To meet the exigencies of a heavy rush of storm water the canal should bifurcate at a point close to the discharg-

ing engine just mentioned. This prong should lead by the straightest line into Bayou Bienvenue which should be dredged through to Lake Borgne. A supplementary engine should be placed at the cut through the protection levee for the purpose of urging the outflow of the flood, and in times of high water outside the levee, of lifting it over the levee in its final discharge.

By this arrangement Bayou Bienvenue would become a safety valve in emergencies, but not to be used as the ordinary channel of discharge, because sewage passing into it would quickly precipitate, choking the channel and perpetuating the noisome odors and disgusting spectacle so conspicuously a feature of the present drainage system

To afford still greater security against excessive rainfall, the central drainage canal should be tapped at a point about midway of its course by a relief canal which should afford lateral discharge into Pontchartrain, along the line, if possible, of some existing canal. This additional safety-valve should also be provided with a draining machine.

I will close this paper with an earnest appeal couched in the language of the committee of the Citizen's Association, in their report on the Main Drainage and Water Supply of Chicago:

"Your committee would urge with all possible force the necessity of an expert commission to make the fullest investigation.

The commission should be constituted for an ample period, and be sufficient in number to give competent expert consideration to all phases of the problem and to eliminate purely personal views. To suppose that those charged with executive duties in a great city will find the leisure to adequately consider the matter would be to ignore our past history.

A general plan can be carried out, step by step, to the gradual improvement of the sanitary condition, and without creating a debt or requiring an extraordinary tax levy.

A comprehensive plan, any portion of which may be

carried into execution whenever the conditions make it necessary, and which will still dovetail into the general system, demands for its conception and elaboration the creation of an expert commission, to which the whole subject of main drainage should be at once committed for exhaustive study and report."

Thanking you, gentlemen, for the patience you have bestowed upon me, I will conclude with the sincere hope that the subject of this paper will receive the consideration it deserves.



